

Student Name: \_\_\_\_\_ Pd. \_\_\_\_\_ Date: \_\_\_\_\_

## Stoichiometry Exercises 2

**Solve the following problems. Show all of your work.**

1. Magnesium reacts with hydrochloric acid to produce magnesium chloride and hydrogen gas.
  - a. Write the balanced equation for this reaction.
  - b. If you start with 25.0 g of magnesium, how many grams of hydrogen gas will form?
  - c. If you start with 140.0 g of hydrochloric acid, how many moles of magnesium will react?
2. Ammonia and oxygen combine to form nitrogen monoxide and water
  - a. If you start with 80.0 g of O<sub>2</sub>, how many grams of nitrogen monoxide will you produce?
  - b. How many grams of H<sub>2</sub>O will you make?
3. Ferric oxide plus carbon monoxide gas yields iron metal and carbon dioxide gas
  - a. How many grams of Fe are made if 0.576 moles of CO<sub>2</sub> are produced?
  - b. 100.0 g CO reacted with excess ferric oxide. If only 114.3 grams of Fe were produced, what was the percent yield?
4. Plumbous oxide and oxygen gas react to form plumbic oxide
  - a. How many moles of plumbic oxide will be formed from 334.8 g of lead(II) oxide?
  - b. How many formula units of product will form from 1,700 liters of O<sub>2</sub> at STP and excess plumbous oxide?
5. Nitrogen gas and hydrogen gas combine to form ammonia (at STP).
  - a. In the above reaction, how many liters of ammonia will be produced from 7.2 liters of hydrogen gas?
  - b. How many grams of nitrogen are needed to produce 460 liters of ammonia?
6. Pentane (C<sub>5</sub>H<sub>12</sub>) combusts.
  - a. How many grams of carbon dioxide form from 320.0 g of pentane?
  - b. How many grams of water are produced if 200.0 g of CO<sub>2</sub> are produced?
  - c. You start with 150.0 g of pentane. How many grams of H<sub>2</sub>O will you make?
7. A solution containing 14.0 g of silver nitrate is added to a solution of excess calcium chloride. Find the mass of precipitate produced.